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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/541,573      | 07/07/2005  | Shigeyuki Hatori     | TKI-006             | 7813             |

20374 7590 08/22/2007  
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| EXAMINER |
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LEE, GILBERT Y

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| ART UNIT | PAPER NUMBER |
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3673

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| MAIL DATE | DELIVERY MODE |
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08/22/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/541,573 | <b>Applicant(s)</b><br>HATORI, SHIGEYUKI |  |
|                              | <b>Examiner</b><br>Gilbert Y. Lee    | <b>Art Unit</b><br>3673                  |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. The amendment filed 5/24/07 has been entered.

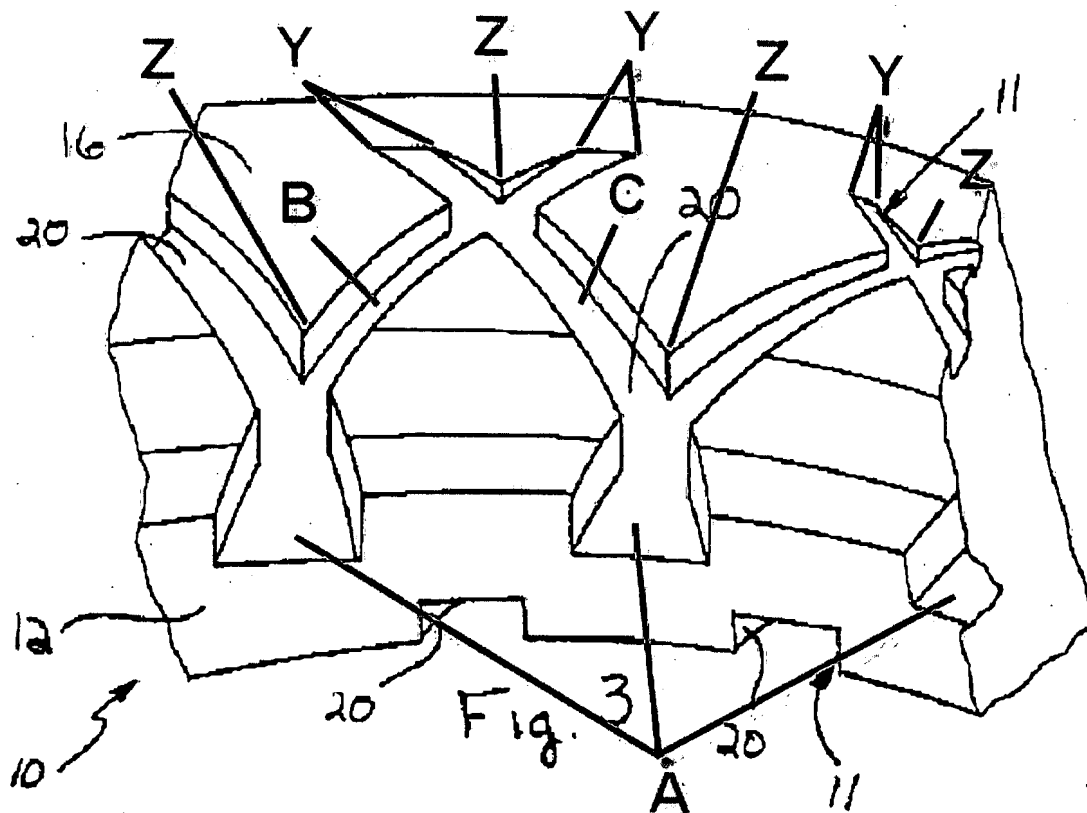
***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Note for reference character A-C, Y and Z, refer to the following:**



2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Dickey et al. (US Patent No. 6,189,896).

Regarding claim 1, the Dickey et al. reference discloses a seal ring (10) wherein a plurality of circumferentially extending concaves (20) being provided along an inner circumferential part of the contact side face (Fig. 3) and separated from each other along the circumference of the side face by columnar surfaces (e.g. Z),

each end of each of said plurality of circumferentially extending concaves converges with a surface of the side face to form a converging point (Y), adjacent converging points being separated from each other by said columnar surface (Fig. 3),

each of said columnar surfaces extending radially outwardly from a line extending between adjacent converging points to an outer circumferential edge of the side face (Fig. 3),

each of the concaves being formed by a first deepest inclined portion (e.g. portion at A) provided in the inner circumferential part of the side face of the seal ring, the first deepest inclined portion being provided to reduce a thickness of the seal ring toward an inner circumference of the seal ring (Fig. 3), and

a second inclined portion (e.g. B and C) being provided on an inner circumferential side of each columnar surface and extending radially inwardly from said line extending between adjacent converging points to the inner circumferential edge of the side face of the seal ring to reduce the thickness of the seal ring toward the inner circumference of the seal ring (Fig. 2).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickey et al.

Regarding claim 2, the Dickey et al. reference discloses the invention substantially as claimed in claim 1, including the dimension between an outermost point of the first deepest inclined portion in the radial direction and the outer circumferential face of the seal ring being 0.4 mm or larger (Col. 3, Lines 39-47) and being equal to or smaller than 2/3 of the thickness of the seal ring (Fig. 2).

However, the Dickey et al. reference fails to explicitly disclose the inclination angle of the first deepest inclined portion.

Discovering an optimum range of a result effective variable involves only routine skill in the art. Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a mechanical expedient. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have an inclination angle of the first deepest inclined portion be in the range of 8° to 45° as a matter of mechanical expedience and to control the amount of leakage past the axial faces (Col. 3, Lines 39-42).

Regarding claims 3 and 5, the modified Dickey et al. reference discloses the invention substantially as claimed in claims 1 and 2.

However, the modified Dickey et al. reference fails to explicitly disclose the inclination of the second inclined portion and a dimension of the second inclined portion in the radial direction.

Discovering an optimum range of a result effective variable involves only routine skill in the art. Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a mechanical expedient. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have an inclination angle of the second inclined portion be in the range of  $8^{\circ}$  to  $45^{\circ}$  and a dimension of the second inclined portion in the radial direction being in the range from  $1/5$  to  $1/2$  of a dimension from the inner circumference of the seal ring to an outermost point of the first deepest inclined portion in the radial direction as a matter of mechanical expedience and to control the amount of leakage past the axial faces (Col. 3, Lines 39-42).

Regarding claims 4 and 6-8, the modified Dickey et al. reference discloses the invention substantially as claimed in claims 1, 2, 3, and 5 respectively.

However, the modified Dickey et al. reference fails to explicitly disclose a width of the first deepest inclined portion and a width of the second inclined portion.

Discovering an optimum range of a result effective variable involves only routine skill in the art. Without the showing of some unexpected result. Since applicant has not shown some unexpected result the inclusion of this limitation is considered to be a

mechanical expedient. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a width of the first deepest inclined portion in the circumferential direction being 8 to 50 times as large as a width of the second inclined portion in the circumferential direction as a matter of mechanical expedience and to control the amount of leakage past the axial faces (Col. 3, Lines 39-42).

### ***Response to Arguments***

4. Applicant's arguments filed 5/24/07 have been fully considered but they are not persuasive.

With regards to the applicant's argument of claim 1, the argument is not persuasive because the Dickey et al. reference discloses the invention substantially as claimed in claim 1. See rejection above.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3673

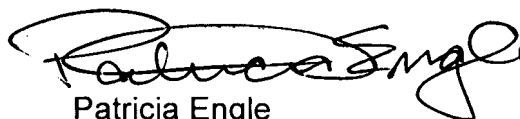
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gilbert Y. Lee whose telephone number is 571-272-5894. The examiner can normally be reached on 8:00 - 4:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia L. Engle can be reached on (571)272-6660. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GL  
August 19, 2007

A handwritten signature in black ink, appearing to read 'Patricia Engle', written over a horizontal line.

Patricia Engle  
Supervisory Examiner  
Tech. Center 3600